A Big Earth Data Platform for Three Poles

**WATER: Dataset of ground truth measurements synchronizing with the airborne microwave radiometers (L&K bands) and thermal imager mission in the A'rou foci experimental area on Apr. 1, 2008**

1、Description

The dataset of ground truth measurements synchronizing with the airborne microwave radiometers (L&K bands, between 8:06~11:17BJT) and thermal imager mission (between 12:48~16:35BJT) was obtained in L2, L3, L4, L5 and L6 of the A'rou foci experimental area on Apr. 1, 2008. The samples were collected every 100m along the strip from south to north in the the morning and from north to south in the afternoon.  
 In L2, L4 and L6, the soil temperature, soil volumetric moisture, the loss tangent, soil conductivity, and the real part and the imaginary part of soil complex permittivity were acquired by the POGO soil sensor, the mean soil temperature from 0-5cm by the probe thermometer, the surface radiative temperature measured three times by the hand-held infrared thermometer, and soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm^3).  
 In L3, soil volumetric moisture was acquired by ML2X, the mean soil temperature from 0-5cm by the probe thermometer, the surface radiative temperature measured three times by the hand-held infrared thermometer, and soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm^3).  
 In L5, soil volumetric moisture, soil conductivity, the soil temperature, and the real part of soil complex permittivity were acquired by WET, the mean soil temperature from 0-5cm by the probe thermometer, the surface radiative temperature measured three times by the hand-held infrared thermometer, soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm^3).   
 Besides, the handheld thermal imager observations were carried out in L4. Those provide reliable ground data for retrieval and validation of soil moisture and freeze/thaw status from active remote sensing approaches.   
 Seven files were included, two ground-based microwave radiometers (L&K-band and L-band) observations, L2 data, L3 data, L4 data, L5 data and L6 data.

2、Keywords

Theme：Electrical conductivity,Soil,Thermal imager,Soil temperature,Remote Sensing Technology,Soil bulk density,Microwave radiometer,Soil moisture/Water content  
Discipline：Terrestrial Surface,Remote Sensing Technology  
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, A'rou flight zone  
Time：2008-04-01, 2008

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：17443.6MB

4.Data format：EXCEL

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.078 | - |
| west：100.411 | - | east：100.55 |
| - | south：38.015 | - |

5、Time frame:2008-04-16 00:00:00+00:00--2008-04-16 00:00:00+00:00

6、Reference method

References to data:

HU Zeyong, DOU Yan, LI Hua, WU Yueru, MA Zhongguo, GE Chunmei, HUANG Chunlin, Wang Weizhen, LI Zhe, LIANG Ji, SHU Lele, HAN Xujun, ZHU Shijie, MA Mingguo, GU Juan, CHANG Cun, HAO Xiaohua. WATER: Dataset of ground truth measurements synchronizing with the airborne microwave radiometers (L&K bands) and thermal imager mission in the A'rou foci experimental area on Apr. 1, 2008. A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0015.db2013

References to articles:

冉有华, 李新. 基于块克里金的土壤水分点观测向像元尺度的尺度上推研究. 冰川冻土, 2009, 31(2): 275-283.  
  
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7、Supporting project information

The CAS (Chinese Academy of Sciences) Action Plan for West Development Project  
National Program on Key Basic Research Project (973 Program

8、Data resource provider

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